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PANASONIC CT-26WX15N SERVICE MANUAL

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MTNC050528A1
B19 Canada: B05

Service Manual

Color Television

Simplified

CT-26WX15N
CT-26WX15UN

GN1M

Please file and use this manual together with the main service manual for Model CT-32HL44J, Order No. MTNC040418C1. A complete parts list and schematics are included in this simplified service manual.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1 Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing.
When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)
Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.
High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautions when servicing high voltage equipment.
Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, use safety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a well insulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.
The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shield limits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.
Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

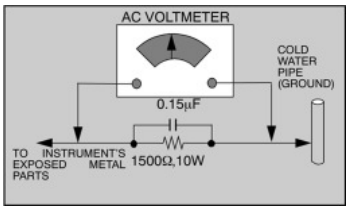
Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a return path to the chassis, the reading should be between 240kΩ and 5.2MΩ. If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage current hot check

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check.
Connect a 1.5kΩ 10 watt resistor in parallel with a 0.15µF capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.
Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.
Repeat the procedure and measure the voltage present with all other exposed metallic parts.
Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliamp. If any measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and rechecked before it is returned to the customer.

Hot check circuit



Insulation test

Connect an insulation tester between an exposed metallic part and A.C. line. Apply 2500VAC/60Hz for 1 second. Confirm that the current measurement is lower than 4mA. Repeat test with other metallic exposed parts.

X ray radiation

WARNING

The potential source of x ray radiation in the TV set is in the high voltage section and the picture tube.

NOTE

It is important to use an accurate, calibrated high voltage meter.
Set the brightness, picture, sharpness and color controls to minimum.
Measure the high voltage. With a 480i or 1080i signal the high voltage should be 28.5 ± 0.3kV. If the upper limit is out of tolerance, immediate service and correction is required to insure safe operation and to prevent the possibility of premature component failure.

Horizontal oscillator disable circuit test

This test must be performed as a final check before the receiver is returned to the customer. See horizontal oscillator disable circuit procedure check in this manual.

2 Service notes

NOTE

These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board, however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.
Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6kΩ resistor, 0 = 0Ω (jumper).
Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.
Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.
Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

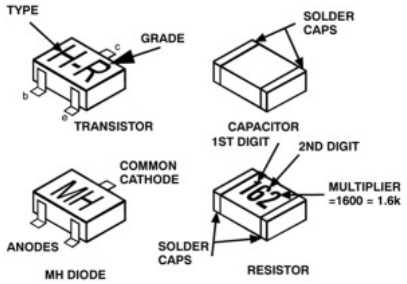
Component removal

1. Use solder wick to remove solder from component end caps or terminal.
2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.

Chip component installation

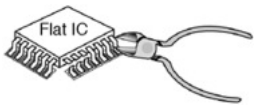
1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

Chip components

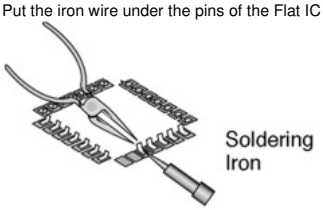


How to replace flat ic (required tools)

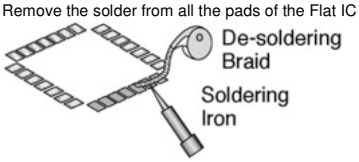
1. Remove the solder from all of the pins of a Flat IC by using a desolder braid



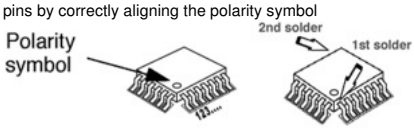
2. Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.



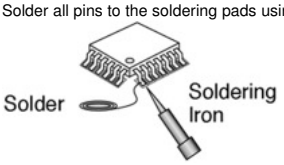
3. Remove the solder from all the pads of the Flat IC by using a de solder braid



4. Position the new Flat IC in place (apply the pins of the Flat IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol



5. Solder all pins to the soldering pads using a fine tipped soldering iron



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below

IMPORTANT

To protect against possible damage to the solid state devices due to arching or static discharge, make certain that all ground wires and CRT DAG wire are securely connected.

CAUTION

The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground (hot) or (cold) when servicing, or incorrect voltages will be measured.

WARNING

This receiver has been designed to meet or exceed applicable safety and x-ray radiation protection as specified by government agencies and independent testing laboratories.
To maintain original product safety design standards relative to x-ray radiation and shock and fire hazard, parts indicated with the symbol on the schematic must be replaced with identical parts. Order parts from the manufacturer's parts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.
For optimum performance and reliability, all other parts should be replaced with components of identical specification.

HORIZONTAL OSCILLATOR DISABLE CIRCUIT

This chassis employs a special circuit to protect against excessive high voltage and beam current. If, for any reason, the high voltage and beam current exceed a predetermined level this protective circuit activates and detunes the horizontal oscillator that limits the high voltage. The over-voltage protection circuit is not adjustable. However, if components indicated by the symbol on the schematic in either the horizontal sweep system or the over-voltage protection circuit itself are changed, the operation of the circuit should be checked using the following procedure:

Equipment needed to check the disabled circuit:

1. High voltage meter (0 ~ 50kV)
2. Variac or isolation transformer
3. D.C. current meter
4. Digital voltmeter

PREPARATION

1. Connect receiver to A.C. 120 Volts. Do not turn ON.
2. Connect HIGH VOLTAGE meter to 2nd anode (H.V. button).

NOTE

Use cold ground for negative lead.

3. Connect the ammeter serial from the flyback anode lead to the picture tube anode socket.

PROCEDURE

1. Apply a monoscope or white pattern.
2. Confirm that beam current is 2.0 mA.
3. Adjust VR524 so that high voltage is 28.5 ± 0.3kV.
4. Adjust VR538 so that digital meter reads 2.3 ± 0.05V
5. Confirm that high voltage protector (SOS) operates at 33kV or less by adjusting VR524.
6. Turn VR524 counter clockwise, turn tv on and apply a monoscope or white pattern.
7. Adjust VR524 so that high voltage meter reads 28.5 ± 0.3kV
8. Once the adjustment is completed, apply a bond on VR524 and VR538. Confirm B+ 142V ± 6.0V with 120V A.C. applied.

NOTE

If high voltage is not within the specified limit the cause must be determined before the receiver is returned to the owner.

3 About lead free solder (PbF)

NOTE

Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder.

The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.
This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the "PbF" or a leaf symbol stamped on the back of PCB.

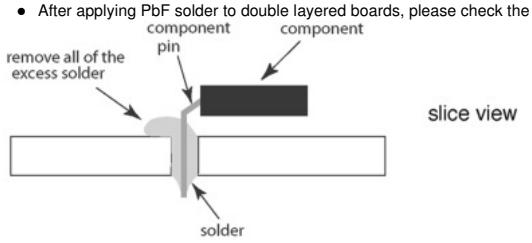
PbF

CAUTION

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 ℉ (30 ~ 40 ℃) higher. Please use a high temperature soldering iron and set it to 700 ± 20 ℉ (370 ± 10 ℃).
- Pb free solder will tend to splash when heated too high (about 1100 ℉ or 600 ℃).

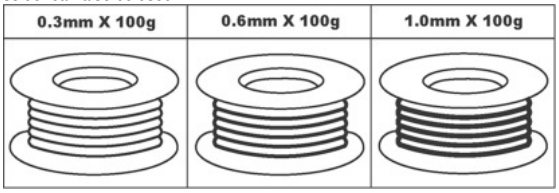
  If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.

- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.



4 Receiver feature table

FEATURE/MODEL	CT-26WX15N/UN
CHASSIS	AP436
MICRO	256K
MENU LANGUAGE	ENG/SPAN/FR
CLOSE CAPTION	X
V-CHIP (USA/CANADA)	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
REMOTE CONTROL (W/LIGHT)	EUR7613ZC0
CRT SUPPLIER	MTPD-M
FAMILY	GN1M
COMB FILTER	MOTION ADP. 3DY/C
HEC/VEC (X=BOTH)	X
VM	X (SELECTABLE)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
HDTV MONITOR	1080i
NTSC LINE DOUBLER	480p PROGRESSIVE
EDTV MONITOR	480p

MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	10W X 2
No. OF SPEAKERS	2
BASS/BALANCE/TREBLE CONTROL	X
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4 (3/1)
PROGRAM OUT	X
AUDIO OUT (FAO/VAO)	FAO/VAO
COMPONENT INPUT (Y, Pb, Pr)	2
S-VHS INPUT (REAR/FRONT)	2/0
DIGITAL INTERFACE	HDMI
WEIGHT (KG/LB)	39 KG/ 85.98LBS
DIMENSIONS (W/D/H) mm	728 / 487 /495

Note:

Specifications are subject to change without notice or obligation. Dimensions and weights are approximate.

5 Board description table

BOARD	CT-26WX15N	DESCRIPTION
A-BOARD	TNP2AH071AD	MAIN CHASSIS
D-BOARD	TNP2AH073AG	HIGH VOLTAGE AND DEFLECTION
DG-BOARD	TNP2AA216	DIGITAL VIDEO
G-BOARD	TNP2AA223	FRONT A/V
H-BOARD	TNP2AA174AB	REAR A/V
L-BOARD	TNP2AA232AC	CRT BOARD

NOTE

When ordering a replacement board assembly, append an “S” to the board number.

EXAMPLE

To order the A Board, the replacement board is TNP2AH071ADS.

NOTE:

The DG-Board is non-serviceable. If this board is defective, replace it with a new board.

6 TV Location of controls

Quick reference control operation

1. **Power -** Press to turn ON or OFF.
2. **Volume -** Press to adjust sound level, or to adjust audio menus, video menus, and select operating features when menus are displayed
3. **Channel -** Press to select programmed channels. Press to highlight desired features when menus are displayed. Also use to select cable converter box channels after programming remote control infra-red codes (the TV/AUX/CABLE switch must be set in CABLE position).
4. **Action -** Press to display main menu and access on screen feature and adjustment menus.
5. **TV/Video -** Press to select TV or one of the video inputs

7 Location of controls (EUR7613ZC0)

POWER
Press to turn ON and OFF.
CH
Press to select next or previous channel and navigate in menus.
VOL
Press to adjust TV sound and navigate in menus.
MUTE
Press to mute sound. Press to display and cancel Closed Caption.
TV/VIDEO
Press to select TV or Video mode.
MENU
Press to access DVD or DBS menus.
R-TUNE
Press to swith to previously viewed channel or video mode.
COMPONENT KEYPAD
Component function button.
SAP
Press to select audio modes (Stereo, SAP or Mono).
TV, VCR, DBS/CBL, DVD
Press to select remote operation.
ACTION
Press to access TV menu.
RECALL
Press to display time, channel, sleep timer, and other options.
NUMERIC KEYPAD
Press numeric keypad to select any channel.
GUIDE
DBS function button.
PROG
Press to enter the minor number in a compound channel number.
EXIT
Press to exit TV and DBS menus.
Panasonic

Note:

For additional information about thish remote please refer to the owner's manual section remote operation, listed on the parts list section.

8 Auto diagnosis feature

This receiver incorporates a new self diagnosis feature. With this new feature will be easier for the technician to detect the failures. There is a LED located by the keyboard on the front panel, this LED will start flashing when a failure is detected by the circuits located in specific areas, depending on how many times the LED is flashing, this will tell you what circuit should be checked. Make a count of flashing and see the table shown below. Please use this feature effectively especially for intermittent problems.

SOS of front LED

FLASHES	POSSIBLE CIRCUIT	SOS
1	POWER+140	140 OCP
2	LOW B+ D.C.	SOS 2
3	N/A	N/A
4	SUB 9V	SUB 9V
5	HI VOLTAGE	HHS
6	IC4001	GC3 FM
7	IC4201	GC3 FS
8	IC4401	GC3 I
9	DIGITAL TO DIGITAL INTERFACE LOCK	DDIFLOCK
10	AUDIO AMP.	SOS 4

Note:

Flash only indicate a hint on a possible circuit failure and must not be used as a specific component diagnostic, (i.e. for IC4001 all related circuitry must be checked).

8.1 SOS History Check

When a certain SOS event is triggered by a malfunction on the receiver, the MPU stores on EEPROM the last SOS events occurred.
To check SOS history, self check procedure must be performed by pressing ACTION and POWER buttons on the receiver's keypad (3 seconds). The self check display appears showing the SOS sign with the last shutdown malfunction event(s) occurred.

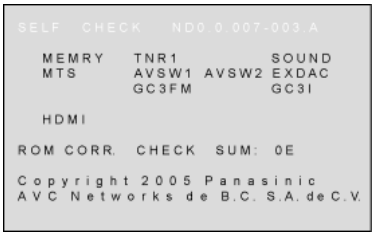
Note:

If two or more SOS events caused the receiver's shutdown, all of the shutdown event will be shown at the time of displaying self check screen.

IMPORTANT:

At this moment the SOS history is cleared from EEPROM, so if self check is performed again the SOS number events won't be displayed on-screen unless SOS is triggered again.

Self Check screen.



9 EEPROM copy jig

This CTV has a feature that allows to clone or back-up main EEPROM data adjustments from a CTV to other by connecting a jig to the CTV set. A jig part number TXFJIG02SER, is available through Matsushita/Panasonic Services.

Preparation:

To connect this jig, remove the lower back cover as instructed on disassembly for service section on this service manual and insert the jig into A15 connector located on the A-Board.

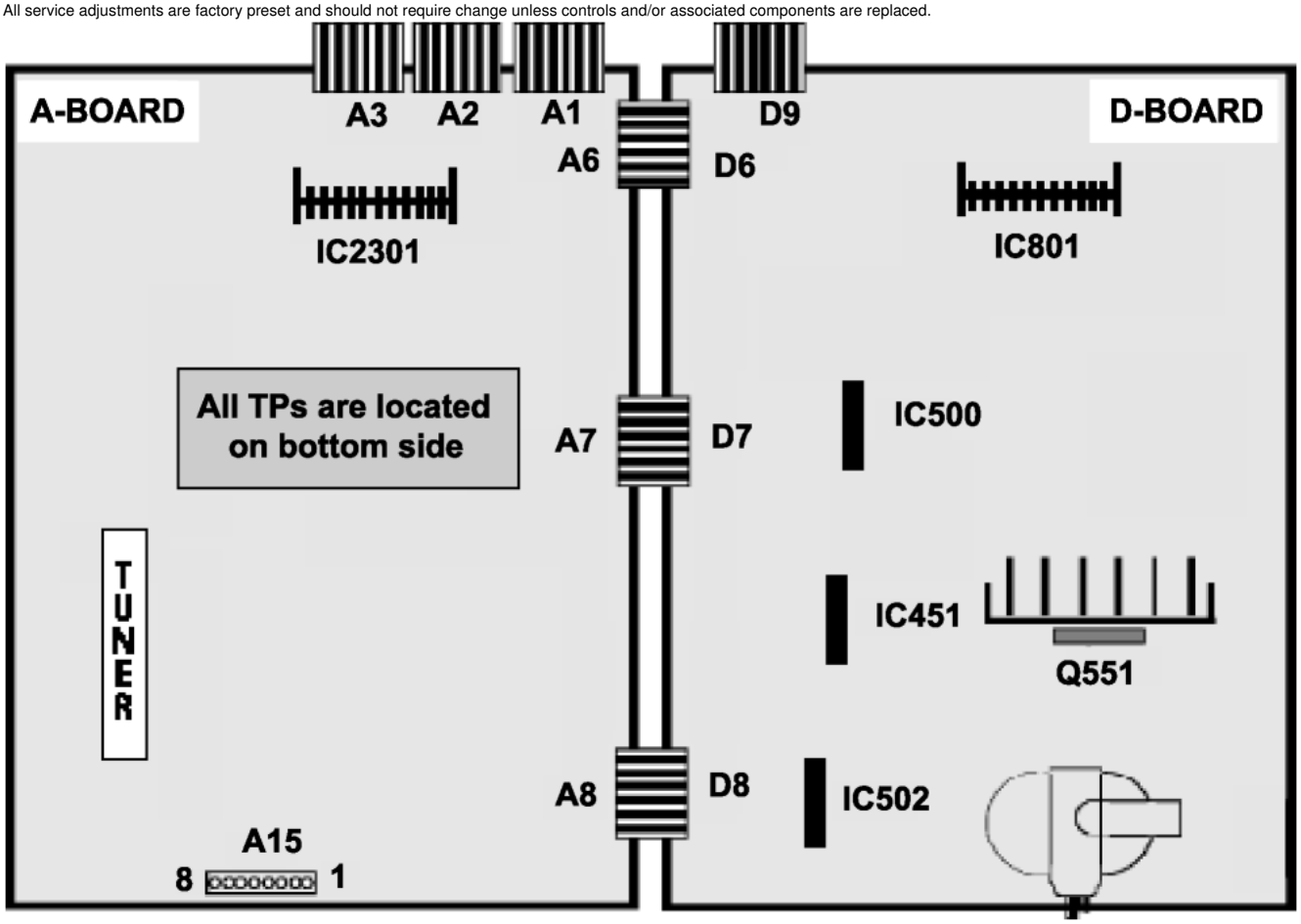
Procedure to copy data:

1. Enter to service mode and display service menu.
2. Select “AREA” DAC and then press ACTION button on remote to enter. Press VOL right/left to select one of the following options then press ACTION:
   - Select ALL to copy all main EEPROM data
   - Select ADJ to copy only adjustment data.
   - Select FIX to copy only fix data
3. To copy data from main EEPROM to jig, select “IN→EX” DAC and press ACTION button on remote.
4. To copy data from jig to main EEPROM, select “EX→IN” DAC and press ACTION button on remote.z

10 Back cover removal

11 Chassis service adjustment procedures

All service adjustments are factory preset and should not require change unless controls and/or associated components are replaced.



140.0_V B+ voltage check

1. Set the BRIGHT and PICTURE to minimum by using the PICTURE menu.
2. Connect the DVM on TPD50 (D-Board by and cold ground

3. Confirm that B+ voltage is 142V ± 6.0V. This voltage supplies B+ to the horizontal output and flyback circuits.

Source voltage chart

120V AC line input. Set the BRIGHT and the PICTURE to minimum by using the PICTURE menu. Use cold or hot ground for the (-) lead of the DVM as needed

A-BOARD	VOLTAGE
STBY 7V (BY IC006) A-Board TPA9	7.5V ± 0.75V
MAIN 9V (BY IC006) A-Board TPA90	9.0V ± 0.5V
MAIN 5V (BY IC2856) A-Board TPA15	5.2V ± 0.3V
GC 2.5V (BY IC2856) A-Board TPA25	2.6V ± 0.2V
STBY 3.3V (BY A13 CONNECTOR) A-Board TPA16	3.3V ± 0.2V
MAIN 3.3V (BY IC 2856) A-Board TPA33	3.3V ± 0.2V

D-BOARD	VOLTAGE
+B2 (BY D14 CONNECTOR) D-Board TPD50	142.0 ± 6.0V
30V (BY IC805) D-Board TPD19	33.5 ± 2.0V
15V (BY IC802) D-Board TPD7	14.5 + 1.5V -1.0
-15V (BY IC805) D-Board TPD6	-15.5V ± 1.5V
SOUND+ (BY D6 CONNECTOR) D-Board TPD4	17.2V + 1.5V -1.0
SOUND- (BY D6 CONNECTOR) D-Board TPD53	-18.0V ±1.5V
210V (BY IC503) D-Board TPD34	211.0V ± 4.0V
MAIN 12V (BY D14 CONNECTOR) D-Board TPD22	12V ± 0.5V

High voltage check

1. Select an active TV channel and confirm that horizontal is in sync.
2. Adjust BRIGHTNESS and PICTURE using PICTURE icon menu so video just disappears.
3. Confirm B+ 142 ± 6.0V is within limit.
4. Using a high voltage meter confirm that the high voltage is 28.5kV ± 0.3kV.

12 Service mode (electronic adjustments)

This receiver has electronic technology using the IC bus concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control functions are now performed by using “on screen display menu”. (The service adjustment mode).

NOTE

It is suggested that the technician reads all the way through and understand the following procedure for entering/exiting the service adjustment mode; then proceed with the instructions working with the receiver. When becoming familiar with the procedure, the flow chart for service mode may be used as a quick guide.

Quick entry to service mode

When minor adjustments need to be done to the electronic controls, the method of entering the service mode without removal of the cabinet back is as follows using the remote control:

1. Select SET-UP icon and select CABLE mode.
2. Select TIMER icon and set SLEEP time for 30 Min.
3. Exit menus.
4. Tune to the channel 124.
5. Adjust VOLUME to minimum (0).
6. Press VOL → (decrease) on receiver. Red “CHK” appears in upper corner.

   NOTE

   After receiver is set into service mode, set TIMER back to NO.

   To toggle between aging and service modes:

   While the “CHK” is displayed on the left top corner of the CRT, pressing “ACTION” and “VOL” UP on the TV simultaneously will toggle between the modes. Red “CHK” for service and yellow “CHK” for aging.

7. Press POWER on the remote control to display the service adjustment modes menu, select adjustment by pressing the volume right/left buttons and channel up/down buttons on the remote and ACTION to enter the adjustment.

ID:00	480I	480P	1080I	
MODE	DW	JUST	4:30	ZOOM
MTS	MTSIN	SEPAL	SEPAH	
CLOCK	CLOCK			
VIDEO	COLOR	TINT	BRIGH	CONT
	B-Y_G	CUT G	CUT R	CUT B
	BRT	R DR	B DR	R-Y_A
HDEF	HLIN	HPOS	HWID	PCC
	PCCHG	PCCLG	PCCHS	PCCLS
	TOPG	BTMG	TOPSL	BTMSL
	TRAP	PARA	SIDE	HTRAP
VDEF	VDEF	VRAS	VEAMP	V-C
DAF	HDAFS			
OTHER	VTOP	BDAC	INPIN	MOIRE
				ID
EEP	AREA	IN ▸ EX	EX ▸ IN	

NOTE

Some adjustments are available only in some modes (480i, 480p, 1080i); it is needed to apply the format. A 1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

Exiting the service mode:

This TV goes out from service mode when it is unplugged or turned OFF. To exit the service mode, turn the TV OFF or unplug the TV from A.C.

Other method

Press ACTION and POWER on the receiver simultaneously for at least 2 seconds.
The receiver momentarily shuts off; then comes back on tuned to channel 3 with a preset level of sound.
Any programmed channels, channels caption data and some others user defined settings will be erased when exited by pressing ACTION and POWER on receiver.

IMPORTANT NOTE

Always check that the TV exits the service mode.

To confirm colors

When in service mode (red "CHK" is displayed) press RECALL on the remote control to enter the purity field check mode

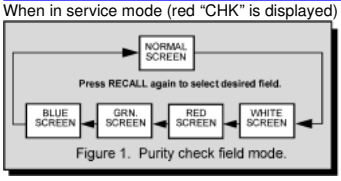


Figure 1. Purity check field mode.

Entering service mode (open-back method)

While the receiver is connected and operating in normal mode, momentarily short test point

FA1 (A15 pin 2) to cold ground (A-Board).
The receiver enters the aging mode.
Yellow letters "CHK" appear in the upper left corner of the screen.

(The volume right/left and channel up/down will adjust rapidly).

12.1 Service adjustment default values for service items

REGISTER	DESCRIPTION	FORMAT		
		FULL	JUST	ZOOM
MTSIN	INPUT LEVEL	1D	N/A	N/A
SEPAL	LOW LEVEL SEPARATION	08	N/A	N/A
SEPAH	HIGH LEVEL SEPARATION	1D	N/A	N/A
CLOCK	CLOCK	125	N/A	N/A
COLOR	COLOR	1F	N/A	N/A
TINT	TINT	7D	N/A	N/A
BRIGH	SUB-BRIGHTNESS	09 3E	N/A	N/A
CONT	SUB-CONTRAST	02 89	N/A	N/A
B-Y_G	MAGENTA TINT ADJ	3D	N/A	N/A

CUT G	GREEN CUT-OFF	01 1B	N/A	N/A
CUT R	RED CUT-OFF	00 F8	N/A	N/A
CUT B	BLUE CUT-OFF	01 23	N/A	N/A
BRT	BRIGHT	09 3E	N/A	N/A
R DR	RED DRIVE	85	N/A	N/A
B DR	BLUE DRIVE	87	N/A	N/A
R-Y_A	R-Y_A	80	N/A	N/A
HLIN	HORIZONTAL LINEARITY	55	N/A	N/A
HPOS	HORIZONTAL POSITIONING	03 64	N/A	N/A
HWID	HORIZONTAL WIDTH	70	N/A	N/A
PCC	PINCUSHION CORRECTION	59	59	68
PCCHG	PINCUSHION HIGH	45	45	34
PCCLG	PINCUSHION LOW	3E	3E	3E
PCCHS	PINCUSHION HIGH	05	05	04
PCCLS	PINCUSHION LOW	05	05	00
TOPG	TOP CORNER PINCUSHION	4C	4C	5F
BTMG	BOTTOM CORNER PINCUSHION	5B	5B	5A
TOPSL	TOP CORNER PINCUSHION SLICE LEVEL	06	06	05
BTMSL	BOTTOM CORNER PINCUSHION SLICE LEVEL	03	03	03
TRAP	TRAPEZOID	80	N/A	7D
PARA	PARALLELOGRAM	07	N/A	08
SIDE	E-W PINCUSHION ADJUSTMENT	12	N/A	13
HTRAP	HORIZONTAL TRAPEZOID	20	N/A	20
VRAS	VERTICAL POSITION	CF	AA	C8
VEAMP	VERTICAL SIZE	00 D5	00 D5	01 50
V-C	VERTICAL LINEARITY	73	73	74
V-S	VERTICAL S CORRECTION	56	56	68
HDAFS	HORIZONTAL DAF PHASE	01 32	N/A	N/A
VTOP	VTOP	00 D9	00 B7	00 D1
BDAC	BDAC	66	N/A	N/A
INPIN	INPIN	10	N/A	N/A
MOIRE	MOIRE	80	80	80
ID	ID	10	10	10

NOTE:

The above table shows the default values for the service items, this values may vary depending on the serviced TV.

	ID DATA		
MODEL	NTSC	1080i	ZOOM
CT-34WX15N/UN	00	00	00
CT-34WC15N/UN	88	88	88

Important Note:

When changing “ID” register, message “Unplug AC to activate” will appear on the screen and the set must be unplugged.

13 Identification of components

13.1 TV with back cover removed

TV View with back cover removed.

13.2 A Board

A-Board view

13.3 D Board

D-Board view

13.4 G Board

G-Board view

13.5 L Board

L-Board view

13.6 DG Board (Top View)

DG-Board view

13.7 DG Board (Bottom View)

DG-Board view

13.8 H Board

H-Board view

14 Reference of PDF links color

DESCRIPTION OF PDF LINK COLORS	
TYPE	DESTINATION
SCHEMATIC	
YELLOW ON IC	IC ON PCB
YELLOW ON CONNECTOR	CONNECTOR ON PCB
YELLOW ON SCHEMATIC	PCB
CYAN	WAVEFORM
GREEN ON SIDE	SCHEMATIC CONTINUED
GREEN ON CONNECTOR	CONNECTOR CONNECTION
BLUE ON IC	VOLTAGE
PCB	
BLUE ON IC	IC ON SCHEMATIC
BLUE ON CONNECTOR	CONNECTOR ON SCHEMATIC
BLUE ON PCB	SCHEMATIC
GREEN ON SIDE	PCB CONTINUED
BLOCK DIAGRAMS	
GREEN ON IC	IC ON SCHEMATIC
GREEN ON SIDE	BLOCK DIAGRAM CONTINUED

15 Conductors View

15.1 A-Board Printed Circuit 1 of 2

15.2 A-Board Printed Circuit 2 of 2

15.3 D-Board Printed Circuit 1 of 2

15.4 D-Board Printed Circuit 2 of 2

15.5 DG-Board Printed Circuit (Top View)

15.6 DG-Board Printed Circuit (Bottom View)

15.7 G-Board Printed Circuit

15.8 H-Board Printed Circuit

15.9 L-Board Printed Circuit

16 Block Diagrams

16.1 Audio Block Diagram

16.2 Video Block Diagram

17 Schematic Diagrams

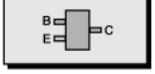
17.1 Schematic notes in english

Notes:

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

CHIP TRANSISTOR LEAD DESIGNATION



SCHEMATIC NOTES

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in μH.
4. Test point indicated by : Test point but no pin .
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⏚ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

VOLTAGE MEASUREMENTS

1. Voltage measurement:
   - AC input to the Receiver is 120V, NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
     Volume - Min.
     TV/Video SW - TV position
     Audio Mode - Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter.
   Incorrect ground connection will result in erroneous readings.

*CAUTION: **Incorrect ground connection of the test equipment will result in erroneous readings.***

WAVEFORM MEASUREMENTS

1. 🔍 indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to "MIN".
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

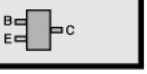
17.2 Schematic notes in spanish

Notas

NOTA DE SEGURIDAD

LOS DIAGRAMAS ELÉCTRICOS INCLUYEN CARACTERÍSTICAS ESPECIALES MUY IMPORTANTES PARA LA PROTECCIÓN CONTRA RAYOS-X, QUEMADURAS Y DESCARGAS ELÉCTRICAS. CUANDO SE DE SERVICIO ES IMPORTANTE USAR PARA REEMPLAZO DE COMPONENTES CRITICOS, SOLO PARTES ESPECIFICADAS POR EL FABRICANTES. LOS COMPONENTES CRITICOS ESTAN SEÑALADOS EN LOS DIAGRAMAS POR EL SIMBOLO ⚠

IDENTIFICACIÓN DE TERMINALES PARA TRANSISTORES EN *CHIP*



NOTAS DE LOS DIAGRAMAS

1. Las Resistencias son de Carbón de 1/4W, a menos que se indique otra característica.
2. Los Capacitores son de Cerámica para 50V, a menos que se indique otra característica.
3. El valor indicado de las Bobinas es la inductancia expresada en µH.
4. Los puntos de prueba en la terminal de algún componente son indicados por ⏽ Los puntos de prueba fuera de los componentes se indican con ⏽
5. Los componentes señalados con el símbolo ⚠ son considerados componentes críticos y deben ser reemplazados sólo con las partes especificadas por el fabricante.
6. ▬▬ (**LINEA GRUESA**) indica las líneas de alimentación de los Voltajes B+.
7. Los diagramas eléctricos están sujetos a cambio sin previo aviso.
8. El símbolo ⏚ indica que es una conexión a **Tierra Caliente** y el símbolo ⏚ indica conexión a **Tierra Fría**.

NOTA: Los demas símbolos de componentes incluidos son usados con fines de diseño.

MEDICIÓN DE VOLTAJES

1. Medición de voltaje:
   - El voltaje de entrada al Receptor es de 120V de Corriente Alterna. Un generador de patrones con formato NTSC se conecta a la entrada de la antena. (Patrón de Barras de Colores con 100 IREs para el Blanco y 7.5 IREs para el Negro.)
   - Los ajustes de los Menus Picture y Audio se normalizan.
     En el Menú Set-Up, en la opción ANTENA, se selecciona el modo de CABLE.
     El nivel de Volumen se minimiza.
     De los modos TV y Video, seleccionar el modo TV.
     Seleccionar modo Estereo del Audio.
   - Las mediciones de los voltajes son nominales y pueden variar hasta 10% en componentes en funcionamiento. Las lecturas de los voltajes pueden variar por la potencia de la señal y el contenido de la imagen.
   - Las fuentes de voltajes son nominales.
2. El símbolo ⏚ indica el tipo de tierra que se utiliza en la conexión del medidor.

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

MEDICIÓN DE FORMAS DE ONDA

1. Un símbolo como ③🔍 indica el punto para medir una señal. (La medición puede hacerse en el punto con mayor accesibilidad, siempre que sea común al indicado.)
2. Se midieron utilizando un generador con formato NTSC conectado a la terminal de la antena. (Patrón de 8 Barras de Colores EAI, formato NTSC de 100 IREs para el Blanco y 7.5 IREs para el Negro.)
3. Los ajustes de usuario de los Menus PICTURE y AUDIO se normalizaron. Posteriormente el nivel de volumen se ajusta al mínimo.
4. Las formas de onda de Video y Color fueron tomadas con un osciloscopio de banda alta y con un punta de prueba de baja capacitancia (10 a 1). La forma y amplitud de las ondas puede variar según el tipo de osciloscopio que se utilice y sus características.
5. El símbolo de tierra ⏚ que aparece junto al número de la forma de onda, indica que se utiliza conexión a **Tierra Caliente** en el extremo negativo de la punta de prueba.

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

17.3 A-Board Schematic 1 of 3

17.4 A-Board Schematic 2 of 3

17.5 A-Board Schematic 3 of 3

17.6 D-Board Schematic 1 of 4

17.7 D-Board Schematic 2 of 4

17.8 D-Board Schematic 3 of 4

17.9 D-Board Schematic 4 of 4

17.10 DG-Board Schematic 1 of 10

17.11 DG-Board Schematic 2 of 10

17.12 DG-Board Schematic 3 of 10

17.13 DG-Board Schematic 4 of 10

17.14 DG-Board Schematic 5 of 10

17.15 DG-Board Schematic 6 of 10

17.16 DG-Board Schematic 7 of 10

17.17 DG-Board Schematic 8 of 10

17.18 DG-Board Schematic 9 of 10

17.19 DG-Board Schematic 10 of 10

17.20 G-Board Schematic

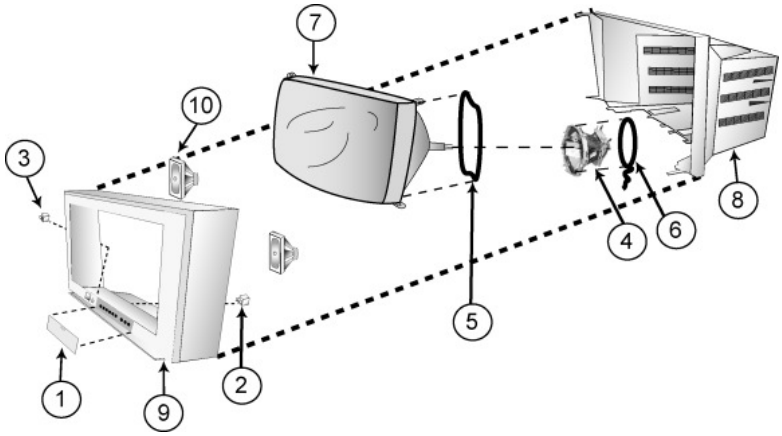
17.21 H-Board Schematic

17.22 L-Board Schematic

17.23 Voltages

17.24 Waveforms

18 Location Parts



19 Parts list

19.1 Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor

Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide Metal Film	J : ± 5% K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor

Example :
ECKF1H103ZF **C** 0.01µF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester Polypropylene	F : ± 1pF G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

19.2 Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
		CAPACITORS	

C037	ECA0JM222B	CAPE 2200UF-6.3V	
C038	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C047	ECA1HM330B	CAPE 33UF-50V	
C054	ECA1HM4R7B	CAPE 4.7UF-50V	
C055	ECA1HM330B	CAPE 33UF-50V	
C056	ECA1VM471B	CAPE 470UF-35V	
C059	ECJ2VC1H101J	CAPC 100PF-J-50V	
C060	ECJ2VC1H101J	CAPC 100PF-J-50V	
C061	ECA1HMR22B	CAPE .22UF-50V	
C062	ECA1HM2R2B	CAPE 2.2UF-50V	
C096	ECJ2VC1H120J	CAPC 12PF-J-50V	
C097	ECJ2VC1H390J	CAPC 39PF-J-50V	
C451	ECA1EM102E	CAPE 1000UF-25V	
C452	ECA1EM102E	CAPE 1000UF-25V	
C453	ECA1HM101B	CAPE 100UF-50V	
C454	ECQV1H224JL3	CAPP .22UF-J-50V	
C455	ECA1CM221B	CAPE 10UF-16V	
C457	ECQB1H471JF3	CAPP 470PF-J-50V	
C458	ECQV1H105JL3	CAPP 1.0UF-J-50V	
C459	ECQE2104KF3	CAPP .10UF-K-200V	
C460	ECQE2224KF3	CAPP .22UF-K-200V	
C461	ECA1HM010B	CAPE 1UF-50V	
C462	ECA0JM221B	CAPE 220UF-6.3V	
C463	ECA1VM470B	CAPE 47UF-35V	
C467	ECQV1H224JL3	CAPP .22UF-J-50V	
C472	ECA1HM4R7B	CAPE 4.7UF-50V	
C505	ECQB1H104JF3	CAPP .10UF-J-50V	
C507	ECEA2CNR47SB	CAPE .47UF-160V	
C508	ECQB1H104JF3	CAPP .10UF-J-50V	
C509	ECKR3A222KBP	CAPC .0022UF-K-1KV	
C510	ECWH20272JVY	CAPP 2700PF-J-2KV	
C511	ECWH20272JVY	CAPP 2700PF-J-2KV	
C512	ECA1HMR47B	CAPE .47UF-50V	
C514	ECQM4472JZW	CAPP 4700PF-J-400V	
C515	ECKR3A222KBP	CAPC .0022UF-K-1KV	
C516	ECQB1H223JF3	CAPP .022UF-J-50V	
C517	ECJ2VG1H151J	CAPC 150-J-50V	
C518	ECKW3D681KBR	CAPC 680PF-K-2KV	
C519	ECKW3D681KBP	CAPC 680PF-K-2KV	
C520	ECKW3D222KBP	CAPC 2200UF-K-2KV	
C521	ECWF2334JSR	CAPM .33UF-J-200V	
C522	ECWF4393RJB	CAPP .039UF-J-400V	
C523	ECQB1H104JF3	CAPP .10UF-J-50V	
C524	ECQE1224KF3	CAPP .22UF-K-100V	
C525	EEUNA1E220B	CAPE 22UF-25V	
C526	ECQB1H104JF3	CAPP .10UF-J-50V	
C527	ECQV1H224JL3	CAPP .22UF-J-50V	
C529	ECQB1H473JF3	CAPP .047UF-J-50V	
C532	ECQB1H104JF3	CAPP .10UF-J-50V	
C534	ECQB1H103JF3	CAPP .01UF-J-50V	
C535	ECQV1H104JL3	CAPP .10UF-J-50V	
C536	ECEA1EN100UB	CAPE 10UF-25V	
C537	ECQB1H473JF3	CAPP .047UF-J-50V	
C538	ECA1CM471B	CAPE 470UF-16V	
C539	ECA1CM471B	CAPE 470UF-16V	
C548	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C553	ECA1CM101B	CAPE 100UF-16V	
C554	ECA1VM101B	CAPE 100UF-35V	
C561	ECA2EHG470E	CAPE 47UF-250V	
C562	ECKR3A561KBP	CAPC 560PF-K-1KV	
C563	EEUEB2E330E	CAPE 33UF-100V	
C564	ECA1VM470B	CAPE 47UF-35V	
C566	ECA1VM470B	CAPE 47UF-35V	
C567	EEUED2C101E	CAPE 100UF-100V	
C571	ECKRHT332KB	CAPC 3300PF-K	
C573	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C574	ECA1HM100B	CAPE 10UF-50V	
C575	ECA1CM101B	CAPE 100UF-16V	
C576	ECA1CM101B	CAPE 100UF-16V	
C577	ECQE6473RKF	CAPACITOR	
C578	ECKW3D681KBR	CAPC 680PF-K-2KV	
C580	ECQB1H223JF3	CAPP .022UF-J-50V	
C581	ECQB1H104JF3	CAPP .10UF-J-50V	
C582	ECQB1H104JF3	CAPP .10UF-J-50V	
C589	ECQE6184JFB	CAPACITOR	
C590	ECJ2VB1H471K	CAPC 470PF-K-50V	
C713	ECKR3A222KBP	CAPC .0022UF-K-1KV	
C714	ECQE2103KF3	CAPP .010UF-K-200V	
C801	ECQU2A224MLA	CAPP .22UF-M-250V	⚠
C802	ECQU2A224MLA	CAPP .22UF-M-250V	⚠
C803	ECQU2A224MLA	CAPP .22UF-M-250V	⚠

C804	ECQU2A224MLA	CAPP .22UF-M-250V	⚠
C806	ECQU2A103MLA	CAPP .010UF-M-250V	⚠
C807	ECKCNA222MEB	CAPC 2200PF-M-125V	⚠
C808	ECKCNA222MEB	CAPC 2200PF-M-125V	⚠
C809	ECQB1H471JF3	CAPP 470PF-J-50V	
C810	EETHC2D102J	CAPE 1000UF-200V	
C811	ECA1HM100B	CAPE 10UF-50V	
C812	ECA1CM471B	CAPE 470UF-16V	
C813	ECA1HM010B	CAPE 1UF-50V	
C815	EEUFC1E222E	CAPE 2200UF-25V	
C821	ECKW3D332KBP	CAPC 3300PF-K-2KV	
C822	ECQB1H102JF3	CAPP 1000PF-J-50V	
C823	ECQB1H471JF3	CAPP 470PF-J-50V	
C824	ECKW3D102KBP	CAPC 1000PF-K-2KV	
C825	ECA1HHG470B	CAPE 47UF-50V	
C826	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C827	ECA1HHG010B	CAPE 1UF-50V	
C828	ECKR3A331KBP	CAPC 330PF-K-1KVDC	
C830	EC0S2DA471BB	CAPE 470UF-200V	
C831	ECKW3D102KBP	CAPC 1000PF-K-2KV	
C834	EEUFC1H222E	CAPE 2200UF-50V	
C835	ECA2EM101E	CAPE 100UF-250V	
C836	ECKR3A151KBP	CAPC 150PF-K-1KV	
C840	EEUFC1E222E	CAPE 2200UF-25V	
C841	ECA1VHG222E	CAPE 2200UF-35V	
C842	ECKR3A331KBP	CAPC 330PF-K-1KVDC	
C843	ECA1VHG222E	CAPE 2200UF-35V	
C844	ECKR3A471KBP	CAPC 470PF-K-1KV	
C846	ECEA1CN101UB	CAPE 100UF-16V	
C852	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C855	EEUFC1A471B	CAPE 470UF-10V	
C857	ECA1HM471E	CAPE 470UF-50V	
C858	ECA1CM101B	CAPE 100UF-16V	
C864	ECEA1CN101UB	CAPE 100UF-16V	
C867	ECQM4103RJZ	CAPP .01UF-J-400V	
C871	ECA1CM102B	CAPE 1000UF-16V	
C875	ECQB1H473JF3	CAPP .047UF-J-50V	
C881	ECKR3A471KBP	CAPC 470PF-K-1KV	
C882	ECA1VHG222E	CAPE 2200UF-35V	
C901	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C902	ECA1CM101B	CAPE 100UF-16V	
C904	ECA1CM101B	CAPE 100UF-16V	
C906	ECA1CM101B	CAPE 100UF-16V	
C907	ECA2EM220E	CAPE 22UF-250V	
C908	ECQE2103KF3	CAPP .010UF-K-200V	
C909	ECA1CM101B	CAPE 100UF-16V	
C910	ECA2CM100B	CAPE 10UF-160V	
C911	ECQE2103KF3	CAPP .010UF-K-200V	
C1051	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C1052	ECEA1CKA470B	CAPE 47UF-16V	
C1401	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C1402	ECJ2VF1C104Z	CAPC .1UF-Z-16V	
C1403	ECA1VM470B	CAPE 47UF-35V	
C1501	ECA1VM470B	CAPE 47UF-35V	
C1502	ECQB1H103JF3	CAPP .01UF-J-50V	
C1505	ECQB1H103JF3	CAPP .01UF-J-50V	
C1506	ECQB1H223JF3	CAPP .022UF-J-50V	
C1507	ECQB1H223JF3	CAPP .022UF-J-50V	
C1522	ECA1VM101B	CAPE 100UF-35V	
C1523	ECA1VM470B	CAPE 47UF-35V	
C1526	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C1528	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C1535	ECA1HM100B	CAPE 10UF-50V	
C1557	ECQB1H102JF3	CAPP 1000PF-J-50V	
C1558	ECJ2VC1H680J	CAPC 68PF-J-50V	
C1559	ECQB1H102JF3	CAPP 1000PF-J-50V	
C1570	ECA1VM470B	CAPE 47UF-35V	
C2202	ECEA1HKA2R2B	CAPE 2.2UF-50V	
C2203	ECEA1HKA4R7B	CAPE 4.7UF-50V	
C2204	TAP106K016CF	CAPT 10MF-16V	
C2205	ECEA1HKA010B	CAPE 1.0UF-50V	
C2206	ECQB1H223JF3	CAPP .022UF-J-50V	
C2207	TAP335K016CF	CAPT 3.3 MF-16V	
C2208	ECJ2VB1C104K	CAPC .1UF-K-16V	
C2209	ECJ2VB1C104K	CAPC .1UF-K-16V	
C2210	ECJ2VB1C104K	CAPC .1UF-K-16V	
C2211	ECEA1HKA100B	CAPE 1UF-50V	
C2212	ECQB1H473JF3	CAPP .047UF-J-50V	
C2215	ECEA1CKA101B	CAPE 100UF-16V	
C2218	ECEA1HKAR47B	CAPE .47UF-50V	
C2301	ECJ2VF1C474Z	CAPC .47UF-Z-16V	

C2302	ECJ2VB1H561K	CAPC 560PF-K-50V	
C2303	ECJ2VB1H332K	CAPC .0033UF-K-50V	
C2304	ECJ2VB1H332K	CAPC .0033UF-K-50V	
C2305	ECJ2VF1C474Z	CAPC .47UF-Z-16V	
C2306	ECJ2VB1H561K	CAPC 560PF-K-50V	
C2307	ECJ2VB1H332K	CAPC .0033UF-K-50V	
C2308	ECJ2VB1H332K	CAPC .0033UF-K-50V	
C2310	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C2312	ECA1VM101B	CAPE 100UF-35V	
C2316	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C2317	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C2319	ECJ2VC1H330J	CAPC 33PF-J-50V	
C2322	ECJ2VF1C474Z	CAPC .47UF-Z-16V	
C2324	ECJ2VF1C474Z	CAPC .47UF-Z-16V	
C2326	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C2327	ECA1HM010B	CAPE 1UF-50V	
C2328	ECA1EM101B	CAPE 100UF-25V	
C2329	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C2331	ECA1EM101B	CAPE 100UF-25V	
C2332	ECJ2VB1H472K	CAPC .0047UF-K-50V	
C2333	ECJ2VB1H472K	CAPC .0047UF-K-50V	
C2350	ECQV1H105JL3	CAPP 1.0UF-J-50V	
C2351	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C2352	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C2353	ECQV1H105JL3	CAPP 1.0UF-J-50V	
C2354	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C2355	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C2356	ECA1HM4R7B	CAPE 4.7UF-50V	
C2357	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C2358	ECJ2VF1H224Z	CAPC .22UF-Z-50V	
C2361	ECJ2VF1H224Z	CAPC .22UF-Z-50V	
C2364	ECA1HM220B	CAPE 22UF-50V	
C2365	ECJ2VF1H224Z	CAPC .22UF-Z-50V	
C2366	ECJ2VF1H224Z	CAPC .22UF-Z-50V	
C2370	ECA1CM101B	CAPE 100UF-16V	
C2371	ECA1CM101B	CAPE 100UF-16V	
C2372	ECEA1CN100UB	CAPE 10UF-16V	
C2373	ECA1HM100B	CAPE 10UF-50V	
C2374	ECA1HM100B	CAPE 10UF-50V	
C2375	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2376	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2377	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2378	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2379	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C2380	ECEA1CN100UB	CAPE 10UF-16V	
C2387	EEUFC1E222E	CAPE 2200UF-25V	
C2390	EEUFC1E222E	CAPE 2200UF-25V	
C2451	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2452	ECJ2VB1H472K	CAPC .0047UF-K-50V	
C2453	ECJ2VB1H223K	CAPC .022UF-K-50V	
C2454	ECJ2VB1H332K	CAPC .0033UF-K-50V	
C2455	ECJ2FB1C684K	CAPC .68UF-Z-16C	
C2456	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2457	ECJ2VB1C104K	CAPC .1UF-K-16V	
C2458	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2459	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2460	ECJ2VB1H103K	CAPC .01UF-K-50V	
C2461	ECA1CM221B	CAPE 10UF-16V	
C2462	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2463	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2464	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2465	ECJ2VB1C104K	CAPC .1UF-K-16V	
C2466	ECJ2FB1C684K	CAPC .68UF-Z-16C	
C2467	ECJ2VB1H332K	CAPC .0033UF-K-50V	
C2468	ECJ2VB1H223K	CAPC .022UF-K-50V	
C2469	ECJ2VB1H472K	CAPC .0047UF-K-50V	
C2470	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C2471	ECA1CM471B	CAPE 470UF-16V	
C2851	ECA1EM471B	CAPE 470UF-25V	
C2852	ECA1CM221B	CAPE 10UF-16V	
C2855	ECA1VM221B	CAPE 220UF-35V	
C2857	EEUFC1C471B	CAPE 470UF-16V	
C2859	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C2861	EEUFC1A471B	CAPE 470UF-10V	
C2862	ECA1HM471E	CAPE 470UF-50V	
C2865	ECA1EM221B	CAPE 220UF-25V	
C2867	EEUFC1A471B	CAPE 470UF-10V	
C2868	ECA0JM222B	CAPE 2200UF-6.3V	
C2869	ECJ2VF1H103Z	CAPC .01UF-Z-50V	
C2870	ECA1EM221B	CAPE 220UF-25V	
C2872	EEUFC1A471B	CAPE 470UF-10V	
C2874	ECJ2VF1H103Z	CAPC .01UF-Z-50V	

C2881	ECJ2VB1H103K	CAPC .01UF-K-50V	
C2882	ECJ2VB1H103K	CAPC .01UF-K-50V	
C3331	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3332	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3333	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3334	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3335	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3336	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3337	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3338	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3339	ECJ2VB1H103K	CAPC .01UF-K-50V	
C3340	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3341	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3342	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3343	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3344	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3345	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3346	ECJ2VB1H103K	CAPC .01UF-K-50V	
C3347	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3348	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3349	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3350	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3351	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3352	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3353	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3354	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3355	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3357	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3358	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3359	ECA1EM471E	CAPE 470UF-25V	
C3360	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3361	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3362	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3363	ECJ2VF1C105Z	CAPC 1.0UF-Z-16V	
C3364	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3365	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3366	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3367	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3368	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3369	ECJ2YB1A105K	CAPC 1.0UF-K-125V	
C3401	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3402	ECJ2VB1H152K	CAPC .0015UF-K-50V	
C3405	ECA1HM010B	CAPE 1UF-50V	
C3406	ECA1HM010B	CAPE 1UF-50V	
C3801	ECQE2104KFW	CAPP .10UF-K-200V	
C3802	ECQE2104KFW	CAPP .10UF-K-200V	
C3803	ECQE2104KFW	CAPP .10UF-K-200V	
C3807	ECA2EM470E	CAPE 47UF-250V	
C3808	ECA2EM470E	CAPE 47UF-250V	
C3809	ECA2EM101E	CAPE 100UF-250V	
C3810	ECA2EM101E	CAPE 100UF-250V	
C3811	ECKC3D332KBN	CAPC 3300PF-K-2KV	
C456A	ECJ2VB1H472K	CAPC .0047UF-K-50V	
C468A	ECJ2VB1H331K	CAPC 330PF-K-50V	
C469A	ECJ2FB1H104K	CAPC .1UF-K-50V	
C502A	ECJ2VF1H104Z	CAPC .1UF-Z-50V	
C503A	ECJ2VB1H102K	CAPC .001UF-K-50V	
C5804	ECJ2VB1C104K	CAPC .1UF-K-16V	
C5805	ECA1VM470B	CAPE 47UF-35V	
C5807	ECQB1H104JF3	CAPP .10UF-J-50V	
C5808	ECA1VM470B	CAPE 47UF-35V	
CF803	D4DDF1R50001	DIODE	⚠
		DIODES	
D005	MA3X152K0L	DIODE	
D009	MA2C165001VT	DIODE	
D012	MAZ40360MF	DIODE ZENER	
D460	MA2C165001VT	DIODE	
D461	MA2C165001VT	DIODE	
D462	MAZ40300MF	DIODE ZENER	
D463	MA2C165001VT	DIODE	
D465	MAZ40390MF	DIODE ZENER	
D466	MA2C165001VT	DIODE	
D468	MA2C165001VT	DIODE	
D469	MAZ40300MF	DIODE ZENER	
D470	MA2C165001VT	DIODE	
D501	MAZ41500MF	DIODE ZENER	
D502	MAZ41500MF	DIODE ZENER	
D503	B0HALP000007	DIODE FAST RECOVERY	
D506	B0JAME000058	DIODE SCHOTTKY BARR	
D507	B0JAME000058	DIODE SCHOTTKY BARR	
D508	B0HAGV000004	DIODE FAST RECOVERY	
D509	MA2C165001VT	DIODE	

D510	MAZ40820MF	DIODE ZENER	⚠
D511	B0EALV000001	DIODE RECTIFIER	
D513	MAZ42700MF	DIODE ZENER	
D516	MAZ40390MF	DIODE ZENER	
D517	B0HALP000007	DIODE FAST RECOVERY	
D518	MA2C165001VT	DIODE	
D519	B0HALP000007	DIODE FAST RECOVERY	
D521	MAZ41800MF	DIODE ZENER	
D522	B0AAGR000002	DIODE SWITCHING	
D523	B0HASV000002	DIODE	
D524	MA2C165001VT	DIODE	
D525	B0HALP000007	DIODE FAST RECOVERY	
D528	B0HALP000007	DIODE FAST RECOVERY	
D532	MA2C165001VT	DIODE	
D533	MA2C700A0F	DIODE	
D534	MA2C165001VT	DIODE	
D539	MA2C165001VT	DIODE	
D540	B0HALP000007	DIODE FAST RECOVERY	
D541	B0JAME000058	DIODE SCHOTTKY BARR	
D584	MA2C165001VT	DIODE	
D701	MA2C029TAF	DIODE	
D702	MA2C029TAF	DIODE	
D801	B0FBAT000006	DIODE RECTIFIER	⚠
D804	B0EBKM000023	DIODE RECTIFIER	⚠
D807	MA2C165001VT	DIODE	
D809	ERZV10D391	VARISTOR SURGE ABSO	⚠
D811	B0EAKL000008	DIODE RECTIFIER	
D814	MA2C165001VT	DIODE	
D815	MA2C165001VT	DIODE	
D816	MA2C165001VT	DIODE	
D817	MAZ42200LF	DIODE ZENER	
D819	MA2C165001VT	DIODE	
D820	B0HAGM000005	DIODE FAST RECOVERY	
D822	B0HAMM000036	DIODE FAST RECOVERY	
D823	MAZ406800F	DIODE ZENER	
D824	B0BA01000070	DIODE VOLTAGE REGUL	
D825	B0HANR000003	DIODE FAST RECOVERY	
D827	B0HANM000038	DIODE FAST RECOVERY	
D828	MA3D690	DIODE	
D829	B0HAMM000124	DIODE	
D830	MA3D690	DIODE	
D831	MAZ41300MF	DIODE ZENER	
D832	MAZ41100HF	DIODE ZENER	
D833	MA2C165001VT	DIODE	
D834	MAZ40360MF	DIODE ZENER	
D835	MA2C165001VT	DIODE	
D836	MAZ41600MF	DIODE ZENER	
D837	B0HAGV000004	DIODE FAST RECOVERY	
D844	MA2C165001VT	DIODE	
D845	MAZ41500MF	DIODE ZENER	
D850	MA2C165001VT	DIODE	
D857	MA2C165001VT	DIODE	
D859	MA2C165001VT	DIODE	
D861	B0HAKM000005	DIODE FAST RECOVERY	
D862	MA2C165001VT	DIODE	
D863	MAZ43300MF	DIODE ZENER	
D866	B0EAKT000018	DIODE RECTIFIER	
D867	MA2C165001VT	DIODE	
D875	MA3D690	DIODE	
D876	B0JCME000037	DIODE SCHOTTKY BARR	
D1001	LN81RPH	DIODE	
D1051	MA2C165001VT	DIODE	
D1052	MA2C165001VT	DIODE	
D1401	MA3X152E0L	DIODE	
D1503	MA3X152K0L	DIODE	
D1550	MA2C700A0F	DIODE	
D1555	B0EAKL000008	DIODE RECTIFIER	
D1560	MAZ40360MF	DIODE ZENER	
D2301	MAZ42700MF	DIODE ZENER	
D2302	MAZ42700MF	DIODE ZENER	
D2304	MA3X152K0L	DIODE	
D2305	MA3X152K0L	DIODE	
D2306	MA3X152K0L	DIODE	
D2307	MA3X152K0L	DIODE	
D2309	MAZ42700MF	DIODE ZENER	
D2310	MA3X152K0L	DIODE	
D2311	MA3X152K0L	DIODE	
D2312	MAZ41000LF	DIODE ZENER	
D2315	MA2C165001VT	DIODE	
D2319	MAZ40330MF	DIODE ZENER	
D2451	MA2C165001VT	DIODE	

D2852	B0JCME000037	DIODE SCHOTTKY BARRIER	
D2856	B0JCME000037	DIODE SCHOTTKY BARRIER	
D2858	B0JCME000037	DIODE SCHOTTKY BARRIER	
D2861	B0JAME000058	DIODE SCHOTTKY BARRIER	
D2881	MA2C165001VT	DIODE	
D2882	MA2C165001VT	DIODE	
D2883	MA2C165001VT	DIODE	
D2884	MA2C165001VT	DIODE	
D3301	MAZ31100ML	DIODE ZENER	
D3302	MAZ31100ML	DIODE ZENER	
D3304	MAZ31100ML	DIODE ZENER	
D3306	MAZ31100ML	DIODE ZENER	
D3307	MAZ31100ML	DIODE ZENER	
D3308	MAZ31100ML	DIODE ZENER	
D3309	MAZ31100ML	DIODE ZENER	
D3310	MAZ31100ML	DIODE ZENER	
D3312	MAZ31100ML	DIODE ZENER	
D3314	MAZ31100ML	DIODE ZENER	
D3316	MAZ31100ML	DIODE ZENER	
D3317	MAZ31100ML	DIODE ZENER	
D3318	MAZ31100ML	DIODE ZENER	
D3319	MAZ31100ML	DIODE ZENER	
D3320	MAZ31100ML	DIODE ZENER	
D3321	MAZ31100ML	DIODE ZENER	
D3322	MAZ31100ML	DIODE ZENER	
D3323	MAZ31100ML	DIODE ZENER	
D3324	MAZ31100ML	DIODE ZENER	
D3325	MAZ31100ML	DIODE ZENER	
D3326	MAZ31100ML	DIODE ZENER	
D3328	MAZ31100ML	DIODE ZENER	
D3329	MAZ31100ML	DIODE ZENER	
D3330	MAZ31100ML	DIODE ZENER	
D3332	CVS20A120MTA	DIODE	
D3334	CVS20A120MTA	DIODE	
D3335	MAZ31100ML	DIODE ZENER	
D3336	MAZ31100ML	DIODE ZENER	
D3404	MAZ31100ML	DIODE ZENER	
D3405	MAZ31100ML	DIODE ZENER	
D3409	MAZ31100ML	DIODE ZENER	
D3410	MAZ31100ML	DIODE ZENER	
D3801	MAZ41200MF	DIODE ZENER	
D3802	MAZ41200MF	DIODE ZENER	
D3803	MAZ41200MF	DIODE ZENER	
D3804	B0HALP000007	DIODE FAST RECOVERY	
D3805	B0HALP000007	DIODE FAST RECOVERY	
D3806	B0HALP000007	DIODE FAST RECOVERY	
D3807	B0HALP000007	DIODE FAST RECOVERY	
D3808	B0HALP000007	DIODE FAST RECOVERY	
D3809	B0HALP000007	DIODE FAST RECOVERY	
D3811	D4EAB3610002	DIODE	
D3813	B0HALP000007	DIODE FAST RECOVERY	
		FUSES	
F801	XBA2A00101F	FUSE	⚠
		INTEGRATED CIRCUITS	
IC002	TVR2AJ218S	IC (EEPROM)	
IC006	C1AB00000441	IC (FOR VIDEO EQUIPMENT)	
IC451	C1AA00000680	IC (FOR VIDEO EQUIPMENT)	
IC500	C0AABB000131	IC (OPERATIONAL AMPLIFIER)	
IC501	AN1431T-TA	INT CKT	
IC502	AN5751N	INT CKT	
IC503	CNC1S171R	INT CKT	
IC504	CNC1S171R	INT CKT	
IC507	AN6914	INT CKT	
IC801	C5HABZZ00126	INT CKT	⚠
IC802	C0EAS0000024	IC (VOLTAGE DETECTING)	⚠
IC805	C0DAAZG00014	IC (FOR POWER SUPPLY)	
IC811	CNC1S171R	INT CKT	⚠
IC901	C5AA00000212	INT CKT	
IC1401	C0BBBA000022	IC (COMPARATOR)	
IC1501	C0BBBA000022	IC (COMPARATOR)	
IC1502	C0ABBA000168	IC (OPERATIONAL AMPLIFIER)	
IC1503	C0BBBA000022	IC (COMPARATOR)	
IC2201	AN5829S-E1V	INT CKT	
IC2301	TDA8925J	AUDIO AMP IC	
IC2303	AN6914S-E1V	INT CKT	
IC2305	C0ABBA000168	IC (OPERATIONAL AMPLIFIER)	
IC2451	NJW1164MPTE1	INT. CKT.	
IC2851	C0CACKG00003	IC (VOLTAGE REGULATOR)	
IC2852	C0DAAZG00014	IC (FOR POWER SUPPLY)	
IC2854	C0DAAZG00014	IC (FOR POWER SUPPLY)	
IC2855	C0DAAZG00014	IC (FOR POWER SUPPLY)	

IC2856	C0DAAZG00014	IC (FOR POWER SUPPLY)	
IC3001	C1AB00001991	INT CKT	
IC3002	C1AB00001875	INT CKT	
IC3801	TDA6118JF-N2	INT CKT (VIDEO OUTPUT)	
IC3802	TDA6118JF-N2	INT CKT (VIDEO OUTPUT)	
IC3803	TDA6118JF-N2	INT CKT (VIDEO OUTPUT)	
IC5007	BA15218FDXE2	INT CKT	
IC5802	C0AABB000131	IC (OPERATIONAL AMPLIFIER)	
		COILS	
L002	G0C330JA0021	COIL PEAKING 33UH	
L009	G0A330GA0024	COIL LINE CHOKE	
L010	G0C180JA0021	COIL	
L452	EXCELDR35V	FERRITE BEAD	
L453	ELC18B152L	COIL CHOKE	
L454	EXCELSA35T	FERRITE BEAD	
L501	EXCELSA24T	FERRITE BEAD	
L502	EXCELSA24T	FERRITE BEAD	
L503	ELC12D103E	COIL CHOKE	
L504	EXCELSA26T	FERRITE BEAD	
L505	EXCELSA26T	FERRITE BEAD	
L506	EXCELSA24T	FERRITE BEAD	
L509	ELC09D100F	COIL CHOKE 10UH	
L510	ELC12D103E	COIL CHOKE	
L514	EXCELSA35T	FERRITE BEAD	
L515	ELC09D471F	COIL CHOKE 470UH	
L516	ELC09D101F	COIL CHOKE 100UH	
L522	ELC18E121L	COIL CHOKE 120UH	
L553	EXCELSA35T	FERRITE BEAD	
L554	ELH5L8115	COIL LINEARITY	
L812	EXCELSA39E	FERRITE BEAD	
L813	EXCELSA39E	FERRITE BEAD	
L816	EXCELSA39V	FERRITE BEAD	
L817	EXCELSA24T	FERRITE BEAD	
L818	EXCELSA24T	FERRITE BEAD	
L819	EXCELDR35V	FERRITE BEAD	
L821	EXCELSA39V	FERRITE BEAD	
L823	TLUADTB820K	COIL	
L824	EXCELDR35V	FERRITE BEAD	
L825	ELC09D470DF	COIL CHOKE 47UH	
L826	ELC09D101DF	COIL CHOKE 100UH	
L827	ELC09D101DF	COIL CHOKE 100UH	
L829	EXCELDR25V	FERRITE BEAD	
L830	EXCELDR35V	FERRITE BEAD	
L845	G0A101ZA0041	COIL LINE CHOKE	
L846	ELC09D220DF	COIL CHOKE 22UH	
L2201	G0C100JA0021	COIL	
L2304	G0A101ZA0041	COIL LINE CHOKE	
L2305	G0A101ZA0041	COIL LINE CHOKE	
L2854	G0A101ZA0041	COIL LINE CHOKE	
L2855	G0A220GA0002	COIL LINE CHOKE	
L2860	G0A470ZA0041	COIL LINE CHOKE	
L2861	G0A470ZA0041	COIL LINE CHOKE	
L2863	G0A470ZA0041	COIL LINE CHOKE	
L2868	G0A470ZA0041	COIL LINE CHOKE	
L3023	G0BYYYY00016	TRANSFORMER	
L3303	G0BYYYY00016	TRANSFORMER	
L3401	G0BYYYY00016	TRANSFORMER	
L3804	G0C1R0JA0021	DIODE	
L3805	G0C1R0JA0021	DIODE	
L3806	G0C1R0JA0021	DIODE	
L3809	G0B250D00001	TRANSFORMER	
L3810	G0B250D00001	TRANSFORMER	
L552A	ELH5L7740	COIL LINEARITY	
LF801	G0B650H00002	COIL	⚠
LF802	HF2836622Y3R	LINE FILTER	⚠
LF803	HF2836622Y3R	LINE FILTER	⚠
LF904	G0B800H00001	COIL	
LF2501	G0B800H00001	COIL	
LF2502	G0B800H00001	COIL	
LF3401	TF0402B04P03	COIL	
LF5802	TF0402B04P03	COIL	
		TRANSISTORS	
Q002	B1ABCF000115	TRANSISTOR	
Q003	B1ADCE000009	TRANSISTOR	
Q013	B1ABCF000115	TRANSISTOR	
Q033	B1ABCF000115	TRANSISTOR	
Q034	B1ADCE000009	TRANSISTOR	
Q404	B1ABCF000115	TRANSISTOR	
Q405	B1ABCF000115	TRANSISTOR	
Q406	B1ABCF000115	TRANSISTOR	
Q459	2SC1473AR	TRANSISTOR	

Q501	B1CEML000002	TRANSISTOR	
Q511	B1ADCE000009	TRANSISTOR	
Q512	B1ABCF000115	TRANSISTOR	
Q513	B1ABCF000115	TRANSISTOR	
Q514	B1ABCF000115	TRANSISTOR	
Q515	B1ADCE000009	TRANSISTOR	
Q516	B1ABCF000115	TRANSISTOR	
Q517	B1ADCE000009	TRANSISTOR	
Q551	2SC5686000LK	TRANSISTOR	
Q556	B1DAFU000003	TRANSISTOR	
Q560	B1DGDN000001	TRANSISTOR	
Q802	2SC3311A0A	TRANSISTOR	
Q803	2SC3311A0A	TRANSISTOR	
Q815	B1ABCF000115	TRANSISTOR	
Q816	B1ABCF000115	TRANSISTOR	
Q820	2SD21770RA	TRANSISTOR	
Q821	2SB14340RA	TRANSISTOR	
Q822	2SA1309A0A	TRANSISTOR	
Q823	B1ABCF000115	TRANSISTOR	
Q824	2SA1309A0A	TRANSISTOR	
Q825	B1ABCF000115	TRANSISTOR	
Q826	B1ABCF000115	TRANSISTOR	
Q827	2SB1011001TV	TRANSISTOR	
Q831	2SA1309A0A	TRANSISTOR	
Q1401	B1ABCF000115	TRANSISTOR	
Q1501	B1ABCF000115	TRANSISTOR	
Q1502	B1ADCE000009	TRANSISTOR	
Q1504	B1ABCF000115	TRANSISTOR	
Q1505	B1ADCE000009	TRANSISTOR	
Q1511	B1ABCF000115	TRANSISTOR	
Q1512	B1ADCE000009	TRANSISTOR	
Q2301	B1ABCF000115	TRANSISTOR	
Q2302	B1ABCF000115	TRANSISTOR	
Q2303	B1ADCE000009	TRANSISTOR	
Q2304	B1ABCF000115	TRANSISTOR	
Q2307	B1ADCE000009	TRANSISTOR	
Q2308	B1ABCF000115	TRANSISTOR	
Q2310	B1ADCE000009	TRANSISTOR	
Q2311	B1ADCE000009	TRANSISTOR	
Q2312	B1ABCF000115	TRANSISTOR	
Q2314	B1ADCE000009	TRANSISTOR	
Q2317	B1ABCF000115	TRANSISTOR	
Q2318	B1ABCF000115	TRANSISTOR	
Q2319	B1ABCF000115	TRANSISTOR	
Q2320	B1ABCF000115	TRANSISTOR	
Q2321	B1ABCF000115	TRANSISTOR	
Q2451	B1ABCF000115	TRANSISTOR	
Q2452	B1ABCF000115	TRANSISTOR	
Q2453	B1ABCF000115	TRANSISTOR	
Q2454	B1ABCF000115	TRANSISTOR	
Q2881	B1ADCE000009	TRANSISTOR	
		RELAYS	
RL801	K6B1AGA00043	RELAY	⚠
RL802	K6B2AGA00014	RELAY	⚠
RL803	K6B1AGA00042	RELAY	⚠
RL804	K6B2AGA00014	RELAY	
		RESISTORS	
R032	ERJ6GEYJ333V	RESM 33K-J-1/10W	
R033	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R034	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R035	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R041	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R075	ERJ6GEYJ101V	RESM 100-J-1/10W	
R076	ERJ6GEYJ101V	RESM 100-J-1/10W	
R077	ERJ6GEYJ101V	RESM 100-J-1/10W	
R096	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R098	ERJ6GEYJ220V	RESM 22-J-1/10W	
R099	ERJ6GEYJ220V	RESM 22-J-1/10W	
R100	ERJ6GEYJ242V	RESM 2.4K-J-1/10W	
R101	ERJ6GEYJ392V	RESM 3.9K-J-1/10W	
R102	ERJ6GEYJ682V	RESM 6.8K-J-1/10W	
R103	ERJ6GEYJ822V	RESM 8.2K-J-1/10W	
R104	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R105	ERJ6GEYJ471V	RESM 470-J-1/10W	
R106	ERJ6GEYJ471V	RESM 470-J-1/10W	
R108	ERJ6GEYJ101V	RESM 100-J-1/10W	
R109	ERJ6GEYJ101V	RESM 100-J-1/10W	
R110	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R111	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R113	ERJ6GEYJ471V	RESM 470-J-1/10W	
R119	ERDS2TJ680T	RESC 68-J-1/4W	

R122	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R123	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R124	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R125	ERJ6GEYJ101V	RESM 100-J-1/10W	
R126	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R127	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R451	EROS2THF1001	RESM 1K-F-1/4W	
R452	EROS2THF2201	RESM 2.2K-F-1/4W	
R453	ERJ6GEYJ822V	RESM 8.2K-J-1/10W	
R454	ERJ6ENF2202V	RESM 22K-F-1/10W	
R456	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R457	ERDS1FJ560T	RESC 56-J-1/2W	
R458	ERDS1FJ4R7P	RESC 4.7-J-1/2W	
R459	ERDS1FJ4R7P	RESC 4.7-J-1/2W	
R461	ERJ6GEYJ272V	RESM 2.7K-J-1/10W	
R462	ERJ6GEYJ563V	RESM 56K-J-1/10W	
R463	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R464	ERDS2TJ102T	RESC 1K-J-1/4W	
R465	ERJ6GEYJ224V	RESM 220K-J-1/10W	
R466	ERDS1FJ4R7P	RESC 4.7-J-1/2W	
R467	ERDS1FJ4R7P	RESC 4.7-J-1/2W	
R468	ERJ6GEYJ272V	RESM 2.7K-J-1/10W	
R469	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R470	ERJ6GEYJ272V	RESM 2.7K-J-1/10W	
R471	ERJ6ENF1802V	RESM 18K-F-1/10W	
R472	ERJ6ENF1501V	RESM 1.5K-F-1/10W	
R473	ERJ6GEYJ272V	RESM 2.7K-J-1/10W	
R474	ERJ6GEYJ563V	RESM 56K-J-1/10W	
R475	ERJ6GEYJ224V	RESM 220K-J-1/10W	
R476	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R501	ERDS2TJ104T	RESC 100K-J-1/4W	
R502	ERG2FJ330H	RESM 33-J-2W	
R503	ERG3FJ221H	RESM 220-J-3W	
R504	ERDS2TJ680T	RESC 68-J-1/4W	
R505	ERG1SJ102P	RESM 1K-J-1W	
R507	ERX2FJR22H	RESM .22-J-2W	
R510	ERG3FJ561H	RESM 560-J-3W	
R512	ERDS2TJ102T	RESC 1K-J-1/4W	
R513	ERDS2TJ471T	RESC 470-J-1/4W	
R514	EROS2THF2552	RESM 25.5K-F-1/4W	⚠
R515	EROS2THF2552	RESM 25.5K-F-1/4W	⚠
R516	ERDS2TJ101T	RESC 100-J-1/4W	⚠
R517	ERC14GK103V	RESM 10K-J-1W	
R518	ERDS2TJ103T	RESC 10K-J-1/4W	
R519	ERDS2TJ221T	RESC 220-J-1/4W	
R520	EROS2THF2552	RESM 25.5K-F-1/4W	⚠
R521	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R522	ERJ6GEYJ392V	RESM 3.9K-J-1/10W	
R523	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R524	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R525	ERJ6GEYJ182V	RESM 1.8K-J-1/10W	
R526	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R527	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R528	ERDS2TJ473T	RESC 47K-J-1/4W	
R529	ERDS2TJ473T	RESC 47K-J-1/4W	
R530	ERJ6GEYJ183V	RESM 18K-J-1/10W	
R531	ERDS2TJ221T	RESC 220-J-1/4W	
R533	ERDS2TJ102T	RESC 1K-J-1/4W	
R534	ERDS2TJ152T	RESC 1.5K-J-1/4W	
R535	ERDS2TJ472T	RESC 4.7K-J-1/4W	
R536	ERDS2TJ221T	RESC 220-J-1/4W	
R537	ERDS2TJ103T	RESC 10K-J-1/4W	
R538	ERDS2TJ472T	RESC 4.7K-J-1/4W	
R553	ERDS2TJ101T	RESC 100-J-1/4W	
R557	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R560	ERDS2TJ102T	RESC 1K-J-1/4W	
R561	EROS2THF2552	RESM 25.5K-F-1/4W	⚠
R563	ERDS2TJ102T	RESC 1K-J-1/4W	
R568	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R569	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R572	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R573	ERC14GK101V	RESC 100-K-1/4W	
R574	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R575	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R576	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R577	EROS2THF2703	RESM 270K-F-1/4W	
R578	ERJ6GEYJ331V	RESM 330-J-1/10W	
R579	ERDS2TJ392T	RESC 3.9K-J-1/4W	
R580	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R581	ERJ6GEYJ101V	RESM 100-J-1/10W	
R582	ERJ6GEYJ103V	RESM 10K-J-1/10W	

R583	ERJ6ENF1501V	RESM 1.5K-F-1/10W	
R584	ERJ6ENF2201V	RESM 2.2K-F-1/10W	
R586	EROS2THF2003	RESM 200K-F-1/4W	
R587	ERJ6GEYJ681V	RESM 680-J-1/10W	
R589	ERJ6GEYJ392V	RESM 3.9K-J-1/10W	
R590	ERJ6GEYJ331V	RESM 330-J-1/10W	
R591	ERDS2TJ100T	RESC 10-J-1/4W	
R592	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R593	ERJ6GEYJ152V	RESM 1.5K-J-1/10W	
R594	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R595	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R597	ERF5AJ680	RESW 68-J-5W	
R598	ERX12SJR22P	RESM .22-J-1/2W	
R599	ERX12SZJR15P	RESM .15-J-1/2W	
R718	ERG2FJ223H	RESM 22K-J-2W	
R732	EROS2THF6342	RESM 63.4K-F-1/4W	
R733	EROS2THF6342	RESM 63.4K-F-1/4W	
R734	EROS2THF1542	RESM 15.4KF-1/4W	
R735	ERDS1FJ220P	RESC 22-F-1/2W	
R736	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R784	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R785	ERJ6GEYJ101V	RESM 100-J-1/10W	
R786	ERJ6GEYJ101V	RESM 100-J-1/10W	
R787	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R800	ERU5TCK1R5T	RESF 1.5-K-5W	⚠
R801	ERC14GK824V	RESC 820K-K-1/4W	
R803	ERDS2TJ680T	RESC 68-J-1/4W	
R804	ERDS2TJ101T	RESC 100-J-1/4W	
R806	ERDS2TJ473T	RESC 47K-J-1/4W	
R807	ERDS2TJ820T	RESC 82-J-1/4W	
R808	ERDS2TJ680T	RESC 68-J-1/4W	
R809	ERDS2TJ472T	RESC 4.7K-J-1/4W	
R810	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R811	ERDS2TJ472T	RESC 4.7K-J-1/4W	
R812	ERDS2TJ473T	RESC 47K-J-1/4W	
R814	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R815	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R816	ERD75TAJ825	RESC 8.2MEG-J-3/4W	⚠
R816	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R817	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R818	ERDS2TJ222T	RESC 2.2K-J-1/4W	
R819	ERDS2TJ391T	RESC 390-J-1/4W	
R820	ERJ6GEYJ122V	RESM 1.2K-J-1/10W	
R830	ERDS1FJ330T	RESC 30-J-1/2W	
R831	ERJ6GEYJ101V	RESM 100-J-1/10W	
R832	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R833	ERJ6GEYJ470V	RESM 47-J-1/10W	
R834	ERDS2TJ223T	RESC 22K-J-1/4W	
R835	ERJ6GEYJ154V	RESM 150K-J-1/10W	
R840	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R841	ERQ12HKR22P	RESF .22-K-1/2W	
R842	ERQ12HKR22P	RESF .22-K-1/2W	
R844	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R845	ERDS1FJ222T	RESC 2200-J-1/2W	
R846	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R847	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R848	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R849	ERDS2TJ223T	RESC 22K-J-1/4W	
R850	ERDS2TJ152T	RESC 1.5K-J-1/4W	
R851	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R852	ER050PHF2702	RESM 27-F-1/2W	
R853	EROS2THF3601	RESM 3.6K-F-1/4W	
R855	ERDS2TJ683T	RESC 68K-J-1/4W	
R856	ERJ6GEYJ123V	RESM 12K-J-1/10W	
R857	ERX1SJ1R0P	RESM 1.0-J-1W	
R858	ERX1SJ1R0P	RESM 1.0-J-1W	
R859	ERDS2TJ272T	RESC 2.7K-J-1/4W	
R860	ERG1SJ102P	RESM 1K-J-1W	
R861	ERX12SJR27P	RESM .27-J-1/2W	
R862	ERX12SJR27P	RESM .27-J-1/2W	
R863	ERX12SJR27P	RESM .27-J-1/2W	
R864	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R865	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R866	ERJ6GEYJ561V	RESM 560-J-1/10W	
R867	ERJ6GEYJ122V	RESM 1.2K-J-1/10W	
R868	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R869	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R870	ERDS2TJ102T	RESC 1K-J-1/4W	
R872	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R873	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R874	ERDS1FJ390T	RESC 39-J-1/2W	
R875	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	

R876	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R878	ERDS2TJ223T	RESC 22K-J-1/4W	
R879	ERJ6ENF6981V	RESM 6.98K-F-1/10W	
R884	ERX1SJ1R8P	RESM 1.8-J-1W	
R886	ERDS2TJ272T	RESC 2.7K-J-1/4W	
R887	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R888	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R889	ERJ6GEYJ272V	RESM 2.7K-J-1/10W	
R890	ERDS2TJ152T	RESC 1.5K-J-1/4W	
R891	ERG1SJ823P	RESM 82K-J-1W	
R892	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R893	ERDS1FJ332T	RESC 3.3K-F-1/2W	
R894	ERJ6ENF1741V	RESM 1.74K-F-1/10W	
R896	ERC14GK334V	RESC 330K-K-1/4W	
R898	ERJ6GEYJ563V	RESM 56K-J-1/10W	
R899	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R901	ERJ6GEYJ101V	RESM 100-J-1/10W	
R902	ERJ6ENF56R0V	RESM 56.0-F-1/10W	
R904	ERG3FJ221H	RESM 220-J-3W	
R905	ERQ1CJP331S	RESF 330-J-1W	
R1051	ERJ6ENF1002V	RESM 10K-F-1/10W	
R1052	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R1053	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R1054	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R1055	ERJ6GEYJ512V	RESM 5.1K-J-1/10W	
R1056	ERJ6GEYJ912V	RESM 9.1K-J-1/10W	
R1057	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R1058	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1059	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R1060	ERJ6GEYJ470V	RESM 47-J-1/10W	
R1061	ERJ6GEYJ101V	RESM 100-J-1/10W	
R1062	ERJ6GEYJ182V	RESM 1.8K-J-1/10W	
R1064	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1401	ERJ6ENF3902V	RESM 39K-F-1/10W	
R1402	ERJ6ENF3012V	RESM 30.1K-F-1/16W	
R1403	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R1404	ERJ6ENF8201V	RESM 8.2K-F-1/10W	
R1405	ERJ6ENF9101V	RESM 9.1K-F-1/10W	
R1406	ERJ6ENF1801V	RESM 1.8K-F-1/10W	
R1407	ERJ6ENF8200V	RESM 820-F-1/10W	
R1408	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R1409	ERDS2TJ473T	RESC 47K-J-1/4W	
R1410	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R1411	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1507	ERJ6ENF4701V	RESM 4.7K-F-1/10W	
R1508	ERJ6ENF1002V	RESM 10K-F-1/10W	
R1512	ERJ6ENF1002V	RESM 10K-F-1/10W	
R1514	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R1515	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R1518	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1522	ERJ6GEYJ330V	RESM 33-J-1/10W	
R1523	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R1526	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1527	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R1529	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R1530	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1531	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1534	ERJ6ENF2201V	RESM 2.2K-F-1/10W	
R1536	ERJ6ENF1602V	RESM 16K-F-1/4W	
R1537	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1569	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R1583	ERJ6ENF5761V	RESM 5.76K-F-1/10W	
R1585	ERJ6ENF3651V	RESM 3.65K-F-1/16W	
R1587	ERJ6ENF2202V	RESM 22K-F-1/10W	
R1588	ERJ6GEYJ152V	RESM 1.5K-J-1/10W	
R1591	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R1592	ERJ6GEYJ152V	RESM 1.5K-J-1/10W	
R1593	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R1599	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R2203	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R2206	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2207	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2221	ERJ6GEYJ562V	RESM 5.6K-J-1/10W	
R2301	ERJ6GEYJ182V	RESM 1.8K-J-1/10W	
R2303	ERJ6GEYJ182V	RESM 1.8K-J-1/10W	
R2305	ERG1SJ220P	RESM 22-J-1W	
R2306	ERG1SJ220P	RESM 22-J-1W	
R2307	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2308	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2309	ERDS2TJ123T	RESC 12K-J-1/4W	
R2322	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2323	ERJ6GEYJ102V	RESM 1K-J-1/10W	

R2324	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R2325	ERJ6GEYJ333V	RESM 33K-J-1/10W	
R2326	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R2328	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R2329	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2330	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R2331	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R2332	ERJ6GEYJ222V	RESM 2.2K-J-1/10W	
R2333	ERJ6GEYJ183V	RESM 18K-J-1/10W	
R2334	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R2335	ERJ6GEYJ271V	RESM 270-J-1/10W	
R2336	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R2337	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2351	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2352	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2353	ERJ6GEYJ183V	RESM 18K-J-1/10W	
R2354	ERJ6GEYJ432V	RESM 4.3K-J-1/10W	
R2355	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2356	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2357	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R2358	ERJ6GEYJ183V	RESM 18K-J-1/10W	
R2359	ERJ6GEYJ432V	RESM 4.3K-J-1/10W	
R2360	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2361	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2362	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R2363	ERDS2TJ102T	RESC 1K-J-1/4W	
R2365	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2366	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2367	ERJ6GEYJ473V	RESM 47K-J-1/10W	
R2368	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2369	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R2370	ERJ6GEYJ472V	RESM 4.7K-J-1/10W	
R2373	ERJ6GEYJ153V	RESM 15K-J-1/10W	
R2377	ERJ6ENF1272V	RESM 12.7K-F-1/10W	
R2378	ERJ6GEYJ102V	RESM 1K-J-1/10W	
R2379	ERJ6GEYJ203V	RESM 20K-J-1/10W	
R2380	ERJ6GEYJ182V	RESM 1.8K-J-1/10W	
R2381	ERJ6GEYJ154V	RESM 150K-J-1/10W	
R2382	ERJ6ENF1001V	RESM 1K-F-1/10W	
R2383	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R2384	ERJ6ENF1100V	RESM 110-F-1/10W	
R2385	ERJ6ENF2002V	RESM 20K-F-1/10W	
R2386	ERJ6GEYJ182V	RESM 1.8K-J-1/10W	
R2387	ERJ6GEYJ154V	RESM 150K-J-1/10W	
R2388	ERJ6ENF1001V	RESM 1K-F-1/10W	
R2389	ERJ6GEYJ332V	RESM 3.3K-J-1/10W	
R2390	ERJ6ENF1100V	RESM 110-F-1/10W	
R2395	ERJ6ENF2002V	RESM 20K-F-1/10W	
R2396	ERDS2TJ182T	RESC 1.8K-J-1/4W	
R2398	ERDS2TJ202T	RESC 2K-J-1/4W	
R2399	ERDS2TJ202T	RESC 2K-J-1/4W	
R2400	ERJ6GEYJ203V	RESM 20K-J-1/10W	
R2403	ERDS2TJ202T	RESC 2K-J-1/4W	
R2405	ERX1SJ5R6P	RESM 5.6-J-1W	
R2406	ERJ6GEYJ393V	RESM 39K-J-1/10W	
R2407	ERX1SJ5R6P	RESM 5.6-J-1W	
R2408	ERJ6GEYJ393V	RESM 39K-J-1/10W	
R2451	ERJ6GEYJ101V	RESM 100-J-1/10W	
R2452	ERJ6GEYJ101V	RESM 100-J-1/10W	
R2453	ERJ6GEYJ681V	RESM 680-J-1/10W	
R2454	ERJ6GEYJ471V	RESM 470-J-1/10W	
R2455	ERDS2TJ123T	RESC 12K-J-1/4W	
R2456	ERJ6GEYJ681V	RESM 680-J-1/10W	
R2457	ERJ6GEYJ471V	RESM 470-J-1/10W	
R2463	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R2464	ERJ6GEYJ562V	RESM 5.6K-J-1/10W	
R2465	ERJ6GEYJ223V	RESM 22K-J-1/10W	
R2466	ERJ6GEYJ562V	RESM 5.6K-J-1/10W	
R2467	ERDS2TJ222T	RESC 2.2K-J-1/4W	
R2851	ERX2SJS1R3H	RESM 1.3-J-2W	
R2852	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2853	ERJ6ENF1911V	RESM 1.91K-F-1/10W	
R2854	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2856	ERJ6ENF1691V	RESM 1.69K-F-1/10W	
R2857	ERJ6ENF1001V	RESM 1K-F-1/10W	
R2858	ERJ6ENF1691V	RESM 1.69K-F-1/10W	
R2859	ERJ6ENF1651V	RESM 1.65K-F-1/10W	
R2862	ERJ6ENF3001V	RESM 3K-F-1/10W	
R2863	ERJ6ENF1021V	RESM 1.02K-F-1/10W	
R2883	ERJ6GEYJ104V	RESM 100K-J-1/10W	
R2885	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R2886	ERJ6GEYJ473V	RESM 47K-J-1/10W	

R3301	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3302	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3303	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3304	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3305	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3306	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3307	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3308	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3309	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3310	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3311	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3312	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3313	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3314	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R3315	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3316	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3317	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3318	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3319	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3320	ERJ6GEYJ103V	RESM 10K-J-1/10W	
R3321	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3322	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3323	ERJ6ENF75R0V	RESM 75.0-F-1/10W	
R3324	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3326	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3327	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3328	ERJ6GEYJ184V	RESM 180K-J-1/10W	
R3403	ERJ6GEYJ224V	RESM 220K-J-1/10W	
R3404	ERJ6GEYJ224V	RESM 220K-J-1/10W	
R3801	ERJ6ENF1000V	RESM 100-F-1/10W	
R3802	ERJ6ENF1000V	RESM 100-F-1/10W	
R3803	ERJ6ENF1000V	RESM 100-F-1/10W	
R3804	ERDS2TJ101T	RESC 100-J-1/4W	
R3805	ERDS2TJ101T	RESC 100-J-1/4W	
R3806	ERDS2TJ101T	RESC 100-J-1/4W	
R3807	ERC12GK821D	RESC 820-K-1/2W	
R3808	ERC12GK821D	RESC 820-K-1/2W	
R3809	ERC12GK821D	RESC 820-K-1/2W	
R3810	ERDS2TJ102T	RESC 1K-J-1/4W	
R3811	ERDS2TJ102T	RESC 1K-J-1/4W	
R3812	ERDS2TJ102T	RESC 1K-J-1/4W	
R5805	ERDS1FJ1R0T	RESC 1.0-J-1/2W	
R5806	ERJ6ENF5602V	RESM 56K-F-1/10W	
R5807	ERJ6ENF2001V	RESM 2K-F-1/10W	
R5808	ERDS1FJ391T	RESC 390-J-1/2W	
R5809	ERX12SJR68P	RESM .68-J-1/2W	
R5810	ERX12SJR47P	RESM .47-J-1/2W	
R5811	ERDS2TJ102T	RESC 1K-J-1/4W	
R5812	ERDS2TJ822T	RESC 8.2K-J-1/4W	
R5813	ERDS1FJ391T	RESC 390-J-1/2W	
R5815	ERJ6GEYJ103V	RESM 10K-J-1/10W	
		SWITCHES	
S801	N9ZZ00000284	SPARK GAP	⚠
S802	N9ZZ00000284	SPARK GAP	⚠
S803	N9ZZ00000284	SPARK GAP	⚠
S804	N9ZZ00000284	SPARK GAP	⚠
SW001	TSE2AD002	SWITCH PUSH	
SW002	EVQPBD05R	SWITCH	
SW003	EVQPBD05R	SWITCH	
SW004	EVQPBD05R	SWITCH	
SW005	EVQPBD05R	SWITCH	
SW006	EVQPBD05R	SWITCH	
SW007	EVQPBD05R	SWITCH	
		TRANSFORMERS	
T501	ETH19K207AZ	TRANSFORMER	
T550	G4E1A0000011	TRANSFORMER	
T551	ZTFN95005A	TRANSFORMER FLYBACK	⚠
T553	ETS28AU2K9AD	TRANSFORMER	
T801	ETS42AU185AD	TRANSFORMER	⚠
T802	ETP28KBZA1ZG	TRANSFORMER	⚠
		OTHERS	
TU001	ENG36A10GLF	TUNER	⚠
1	TKP2AA1681S	FRONT DOOR	
M001	TKX66600	SUPPORT	
M002	TBM2A30843	BADGE PANASONIC	
2	TEK6940	LATCH	
3	TKPA34502	GUIDE IR	
M003	TLCA006	CONVERGENCE YOKE	
4	TLY2AA052	DEFLECTION YOKE	⚠
M004	TMM2A30702	WEDGE YOKE	

M005	TMWJ018	LED HOLDER	
M006	TSM2AA001	MAGNET PERMALLOY	
M007	TSN63115-4	MAGNET PURITY	
5	TSP2AA042	COIL DEGAUSSING	⚠
6	TSP2AF010	COIL ROTATION	
M008	TSX2AA0411	LINE CORD	⚠
M009	TXF3A01DG5	ASSY GROUND CABLE	
7	W66MAF185X	CRT W26	⚠
M010	TXFKP22JSER	ASSY AV BRACKET	
M011	TXFBX02NSER	ASSY POWER BUTTON	
8	TXFKU04NSER	ASSY CABINET BACK	
9	TXKFY12NSER	ASSY CABINET FRONT	
10	TXFKP07NSER	ASSY SPEAKER & BRACKET	
RM001	PNA4701M04TV	REMOTE CTRL RECEPTOR	
DG1	TJSF17350	CONNECTOR	
DG3	TJSF17435	CONNECTOR	
DG4	K1KA65B00003	CONNECTOR	
DG5	K1KA08A00179	CONNECTOR	
JK5001	K1FA119E0001	INT CKT	
SC3802	TJS2AC00401	SOCKET CRT	⚠
JK3301	TJB2AA0521	TERMINAL A/V	
JK3401	TJB2AA0501	TERMINAL A/V	
JK3302A	TJB2AA0532	TERMINAL A/V	
ACCESORIES			
M012	EUR7613ZC0	TRANSMITTER REMOTE	
M013	TQB2AA0528-1	OWNER'S MANUAL	
M014	UR76EC0303E	BATTERY COVER REMOTE CTRL	

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